

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) Within a processor-based digital image acquisition device, a method of enhancing parameters of a digital image as part of a post-image capture process using face detection within said captured image to achieve one or more desired image parameters, the method comprising:
- (a) determining default values of relative exposure or size, or both, of at least some portion of said digital image;
 - (b) determining the values of one or more camera acquisition parameters;
 - (c) generating in-camera, capturing or otherwise obtaining in-camera a collection of low resolution images including an image of a face;
 - (d) tracking said face within said collection of low resolution images;
 - (d) identifying a plurality of groups of pixels that correspond to said face within a digitally-captured main image based on the tracking of said face within said collection of low resolution images, and determining values corresponding to relative exposure or size, or both, of said groups of pixels; and
 - (d) comparing one or more default values of relative exposure or size, or both, with one or more captured values of relative exposure or size, or both, based upon analysis of said image of said face;
 - (e) adjusting in a post-image capture process said image parameters including adjusting said values of relative exposure or size, or both, of said face, and
 - (f) removing identification of one or more of said plurality of groups of pixels as corresponding respectively to one or more images of one or more faces, and
 - (g) wherein the removing being performed by increasing a sensitivity level of face identifying within at least one low resolution image or said main image or both.

2. (original) The method of claim 1, each of the steps being performed within a digital still camera.

3. (original) The method of claim 1, each of the steps being performed within a digital video camera.

4. (original) The method of claim 1, comprising determining and adjusting one or more values of relative exposure of said face.

5. (currently amended) Within a processor-based digital image acquisition device, a method of enhancing acquisition parameters of a digital image as part of an image capture process using face detection within said captured image to achieve one or more desired image acquisition parameters, the method comprising:

(a) determining default values of one or more image attributes of at least some portion of said digital image;

(b) determining the values of one or more camera acquisition parameters;

(c) generating in-camera, capturing or otherwise obtaining in-camera a collection of low resolution images including an image of a face;

(d) tracking said face within said collection of low resolution images;

(e) identifying a plurality of groups of pixels that correspond to said face within a digitally-captured main image based on the tracking of said face within said collection of low resolution images, and determining corresponding image attributes to said groups of pixels; and

(f) comparing one or more default image attribute values with one or more captured image attribute value based upon analysis of said image of said face; and

(g) adjusting said camera acquisition parameters including adjusting said image attribute values,

(h) wherein the identifying of face pixels is automatically performed by an image processing apparatus, the method further comprising removing as a false identification one or more of said plurality of groups of pixels as corresponding respectively to one or more images of one or more faces, and

~~(g)~~ wherein multiple groups of pixels that correspond respectively to multiple images of faces within the digital-captured image remain identified after the removing, the method further comprising performing automated processing of the remaining multiple groups of pixels corresponding to the multiple images of faces including adjusting in a post-image capture process values of one or more parameters of each of said multiple remaining faces.

6. (original) A method of manually removing one or more detected faces as recited in claim 5, the method being performed in response to false detection of regions as faces.

7. (previously presented) A method of manually removing one or more detected faces as recited in claim 5, the method being performed in response to a determination to concentrate on less said image faces than faces identified in said identifying.

8. (currently amended) A method of manually removing one or more detected faces within a processor-based digital image acquisition device, including a method of enhancing acquisition parameters of a digital image as part of an image capture process using face detection within said captured image to achieve one or more desired image acquisition parameters, the method comprising:

~~(a)~~ determining default values of one or more image attributes of at least some portion of said digital image;

~~(b)~~ determining the values of one or more camera acquisition parameters;

~~(c)~~ generating in-camera, capturing or otherwise obtaining in-camera a collection of low resolution images including an image of a face;

~~(d)~~ tracking said face within said collection of low resolution images;

~~(e)~~ identifying a plurality of groups of pixels that correspond to said face within a digitally-captured main image based on the tracking of said face within said collection of low resolution images, and determining corresponding image attributes to said groups of pixels; and

~~(f)~~ comparing one or more default image attribute values with one or more captured image attribute value based upon analysis of said image of said face; and

(e) adjusting said camera acquisition parameters including adjusting said image attribute values,

(f) wherein the identifying of face pixels is automatically performed by an image processing apparatus, the method further comprising removing one or more of said plurality of groups of pixels that correspond to said image of said face, and

(g) wherein the method being performed by increasing a sensitivity level of said face identifying within at least one low resolution image or said main image or both.

9. (original) A method of manually removing one or more detected faces as recited in claim 5, the method being performed by an interactive visual method.

10. (original) An interactive visual method of manually removing one or more detected faces as recited in claim 5, the method being performed using an image acquisition built-in display.

11. (previously presented) The method of claim 1, the face pixels identifying being automatically performed by an image processing apparatus, the method further comprising manually adding an indication of another face within the image.

12. (previously presented) The method of claim 1, the face pixels identifying being automatically performed by an image processing apparatus which receives a relative value as to a detection assurance.

13. (currently amended) Within a processor-based digital image acquisition device, a method of enhancing parameters of a digital image as part of a post-image capture process using face detection within said captured image to achieve one or more desired image parameters, the method comprising:

(a) determining default values of relative exposure or size, or both, of at least some portion of said digital image;

(b) determining the values of one or more camera acquisition parameters;

(e) generating in-camera, capturing or otherwise obtaining in-camera a collection of low resolution images including an image of a face;

(d) tracking said face within said collection of low resolution images;

(e) identifying a plurality of groups of pixels that correspond to said face within a digitally-captured main image based on the tracking of said face within said collection of low resolution images, and determining values corresponding to relative exposure or size, or both, of said groups of pixels; and

(d) comparing one or more default values of relative exposure or size, or both, with one or more captured values of relative exposure or size, or both, based upon analysis of one or more low resolution images or said main image of said face or both;

(e) adjusting in a post-image capture process said image parameters including adjusting said values of relative exposure or size, or both, of said face, and

(f) wherein the identifying of face pixels is automatically performed by an image processing apparatus which receives different relative values as to estimated importance of different detected regions that are identified as faces within one or more low resolution images or the digitally-captured main image or both.

14. (previously presented) The method of claim 13, the method further comprising manually modifying one or more of said relative values as to the estimated importance of said different detected regions that are identified as faces within the digitally-captured image.

15. (currently amended) A processor-implemented method of digital image processing using face detection to achieve a desired image parameter, comprising:

(a) generating in-camera, capturing or otherwise obtaining in-camera a collection of low resolution images including an image of a face;

(b) tracking said face within said collection of low resolution images;

(c) identifying a group of pixels that correspond to said face within a digitally-detected main image based on the tracking of said face within said collection of low resolution images;

(b) determining initial values of relative exposure or size, or both, of at least some of the pixels; and

(c) determining an initial relative exposure or size, or both, of the digitally-detected image of said face based on the initial values; and

(d) automatically adjusting values of the relative exposure or size, or both, of pixels within the digitally-detected image of said face based upon comparison of the initial relative exposure or size, or both, of said face with a desired relative exposure or size, or both, of said face, and

(e) removing identification of said group as corresponding respectively to one or more images of one or more faces, and

(f) wherein the removing being performed by increasing a sensitivity level of said face identifying within at least one low resolution image or said main image or both.

16. (original) The method of claim 15, the method being performed within a digital camera.

17. (previously presented) The method of claim 16, comprising determining one or more initial values of relative exposure of said face, and adjusting one or more values of the relative exposure of said face.

18. (previously presented) The method of claim 16, the face pixels identifying being automatically performed by an image processing apparatus, the method further comprising manually removing a false indication of another face within the image.

19. (previously presented) The method of claim 16, the face pixels identifying being automatically performed by an image processing apparatus, the method further comprising manually adding an indication of another face within the image.

20. (previously presented) The method of claim 15, the one or more parameters including determining one or more initial values of size of said face, and adjusting one or more values of size of said face.

21. (currently amended) A processor-implemented method of digital image processing using face detection to achieve a desired image parameter, comprising:

(a) generating in-camera, capturing or otherwise obtaining in-camera a collection of low resolution images including an image of a face;

(b) tracking said face within said collection of low resolution images;

(c) identifying a group of pixels that correspond to said face within a digitally-detected main image based on the tracking of said face within said collection of low resolution images;

(d) determining initial values of one or more parameters of at least some of the pixels; and

(e) determining an initial parameter of the digitally-detected image based on the initial values; and

(f) automatically adjusting values of the one or more parameters of pixels within the digitally-detected image based upon comparison of the initial parameter with the desired parameter,

(g) wherein the identifying of face pixels is automatically performed by an image processing apparatus, the method further comprising adding an indication of another face within the image, and

(h) wherein multiple groups of pixels corresponding to multiple images of faces within the digital-captured image are identified after the adding, and the method further comprises performing automated processing of the multiple groups of pixels corresponding to the multiple images of faces including adjusting in a post-image capture process one or more values of one or more parameters of the multiple faces.

22. (previously presented) The method of claim 21, the identifying of face pixels being automatically performed by an image processing apparatus, the method further comprising manually adding an indication of another face within the image.

23. (currently amended) Within a digital image acquisition device, one or more processor readable storage devices having processor readable code embodied thereon,

said processor readable code for programming one or more processors to perform a method of enhancing parameters of a digital image as part of a post-image capture process using face detection within said captured image to achieve one or more desired image acquisition parameters, the method comprising:

- (a) determining default values of relative exposure or size, or both, of at least some portion of said digital image;
- (b) determining the values of one or more camera acquisition parameters;
- (c) generating in-camera, capturing or otherwise obtaining in-camera a collection of low resolution images including an image of a face;
- (d) tracking said face within said collection of low resolution images;
- (e) identifying a plurality of groups of pixels that correspond to said face within a digitally-captured main image based on the tracking of said face within said collection of low resolution images, and determining values corresponding to relative exposure or size, or both, of said groups of pixels; and
- (f) comparing one or more default values of relative exposure or size, or both, with one or more captured values of relative exposure or size, or both, based upon analysis of said image of said face;
- (g) adjusting in a post-image capture process said image parameters including adjusting said values of relative exposure or size, or both, of said face, and
- (h) removing as a false identification one or more of said plurality of groups of pixels as corresponding respectively to one or more images of one or more faces, and
- (i) wherein the removing being performed by increasing a sensitivity level of said face identifying within at least one low resolution image or said main image or both.

24. (previously presented) The one or more storage devices of claim 23, the method being performed within a digital still camera.

25. (previously presented) The one or more storage devices of claim 23, the method being performed within a digital video camera.

26. (previously presented) The one or more storage devices of claim 23, the one or more parameters including relative exposure of said face.

27. (currently amended) Within a digital image acquisition device, one or more processor readable storage devices having processor readable code embodied thereon, said processor readable code for programming one or more processors to perform a method of perfecting acquisition parameters of a digital image as part of an image capture process using face detection within said captured image to achieve one or more desired image acquisition parameters, the method comprising:

- (a) determining default values of one or more image attributes of at least some portion of said digital image;
- (b) determining the values of one or more camera acquisition parameters;
- (c) generating in-camera, capturing or otherwise obtaining in-camera a collection of low resolution images including an image of a face;
- (d) tracking said face within said collection of low resolution images;
- (e) identifying a plurality of groups of pixels that correspond to said face within a digitally-captured main image based on the tracking of said face within said collection of low resolution images, and determining corresponding image attributes to said groups of pixels; and
- (f) comparing one or more default image attribute values with one or more captured image attribute value based upon analysis of said image of said face; and
- (g) adjusting said camera acquisition parameters including adjusting said image attribute values,
- (h) the identifying of face pixels being automatically performed by an image processing apparatus, the method further comprising removing as a false identification one or more of said plurality of groups of pixels as corresponding respectively to one or more images of one or more faces, and
- (i) wherein multiple groups of pixels that correspond respectively to multiple images of faces within the digital-captured image remain identified after the removing, the method further comprising performing automated processing of the remaining multiple groups of pixels corresponding to the multiple images of faces including

adjusting in a post-image capture process values of one or more parameters of each of said multiple remaining faces.

28. (previously presented) The one or more storage devices of claim 27, the manual removing of one or more detected faces being performed in response to false detection of regions as faces.

29. (previously presented) The one or more storage devices of claim 27, the manual removing of one or more detected faces being performed in response to a determination to concentrate on less said image faces than faces identified in said identifying.

30. (currently amended) Within a digital image acquisition device, one or more processor readable storage devices having processor readable code embodied thereon, said processor readable code for programming one or more processors to perform a method of perfecting acquisition parameters of a digital image as part of an image capture process using face detection within said captured image to achieve one or more desired image acquisition parameters, the method comprising:

- (a) determining default values of one or more image attributes of at least some portion of said digital image;
- (b) determining the values of one or more camera acquisition parameters;
- (c) generating in-camera, capturing or otherwise obtaining in-camera a collection of low resolution images including an image of a face;
- (d) tracking said face within said collection of low resolution images;
- (e) identifying a plurality of groups of pixels that correspond to said face within a digitally-captured main image based on the tracking of said face within said collection of low resolution images, and determining corresponding image attributes to said groups of pixels; and
- (d) comparing one or more default image attribute values with one or more captured image attribute value based upon analysis of said image of said face; and
- (e) adjusting said camera acquisition parameters including adjusting said image attribute values, and

~~(f)~~ the identifying of face pixels being automatically performed by an image processing apparatus, the method further comprising removing one or more of said plurality of groups of pixels that correspond to said image of said face, and

~~(g)~~ wherein the manual removing of one or more detected faces being performed by increasing a sensitivity level of said face identifying within at least one low resolution image or said main image or both.

31. (previously presented) The one or more storage devices of claim 27, the manual removing one or more detected faces as recited being performed by an interactive visual method.

32. (original) The one or more storage devices of claim 27, the method being performed using an image acquisition built-in display.

33. (previously presented) The one or more storage devices of claim 23, the identifying of face pixels being automatically performed by an image processing apparatus, the method further comprising manually adding an indication of another face within the image.

34. (previously presented) The one or more storage devices of claim 23, the identifying of face pixels being automatically performed by an image processing apparatus which receives a relative value as to a detection assurance.

35. (currently amended) Within a digital image acquisition device, one or more processor readable storage devices having processor readable code embodied thereon, said processor readable code for programming one or more processors to perform a method of enhancing parameters of a digital image as part of a post-image capture process using face detection within said captured image to achieve one or more desired image acquisition parameters, the method comprising:

~~(a)~~ determining default values of relative exposure or size, or both, of at least some portion of said digital image;

- ~~(b)~~ determining the values of one or more camera acquisition parameters;
- ~~(c)~~ generating in-camera, capturing or otherwise obtaining in-camera a collection of low resolution images including an image of a face;
- ~~(d)~~ tracking said face within said collection of low resolution images;
- ~~(e)~~ identifying a plurality of groups of pixels that correspond to said face within a digitally-captured main image based on the tracking of said face within said collection of low resolution images, and determining values corresponding to relative exposure or size, or both, of said groups of pixels; and
- ~~(f)~~ comparing one or more default values of relative exposure or size, or both, with one or more captured values of relative exposure or size, or both, based upon analysis of said image of said face;
- ~~(g)~~ adjusting in a post-image capture process said image parameters including adjusting said values of relative exposure or size, or both, of said face, and
- ~~(h)~~ wherein the identifying of face pixels is automatically performed by an image processing apparatus which receives relative values as to an estimated importance of different detected regions identified as faces within one or more low resolution images or the digitally-captured main image or both.

36. (previously presented) The one or more storage devices of claim 35, the method further comprising manually modifying one or more of said relative values as to the estimated importance of said different detected regions identified as faces within one or more low resolution images or the digitally-captured main image or both.

37. (currently amended) One or more processor readable storage devices having processor readable code embodied thereon, said processor readable code for programming one or more processors to perform a method of digital image processing using face detection to achieve a desired image parameter, wherein the method comprising:

- ~~(a)~~ generating in-camera, capturing or otherwise obtaining in-camera a collection of low resolution images including an image of a face;
- ~~(b)~~ tracking said face within said collection of low resolution images;

(e) identifying a group of pixels that correspond to said face within a digitally-detected main image based on the tracking of said face within said collection of low resolution images;

(b) determining initial values of relative exposure or size, or both, of at least some of the pixels; and

(e) determining an initial relative exposure or size, or both, of the digitally-detected image of said face based on the initial values; and

(d) automatically adjusting values of the relative exposure or size, or both, of pixels within the digitally-detected image of said face based upon comparison of the initial relative exposure or size, or both, of said face with a desired relative exposure or size, or both, of said face, and

(e) removing identification of one or more of said plurality of groups of pixels as corresponding respectively to one or more images of one or more faces, and

(f) wherein the removing being performed by increasing a sensitivity level of said face identifying within at least one low resolution image or said main image or both.

38. (original) The one or more storage devices of claim 37, the method being performed within a digital camera.

39. (previously presented) The one or more storage devices of claim 38, wherein the method comprising determining one or more initial values of relative exposure of said face, and adjusting one or more values of the relative exposure of said face.

40. (previously presented) The one or more storage devices of claim 38, the identifying of face pixels being automatically performed by an image processing apparatus, the method further comprising manually removing a false indication of another face within the image.

41. (previously presented) The one or more storage devices of claim 38, the identifying of face pixels being automatically performed by an image processing apparatus, the

method further comprising manually adding an indication of another face within the image.

42. (previously presented) The one or more storage devices of claim 37, the method comprising determining and adjusting a relative exposure of said face.

43. (currently amended) One or more processor readable storage devices having processor readable code embodied thereon, said processor readable code for programming one or more processors to perform a method of digital image processing using face detection to achieve a desired image parameter, comprising:

- (a) generating in-camera, capturing or otherwise obtaining in-camera a collection of low resolution images including an image of a face;

- (b) tracking said face within said collection of low resolution images;

- (c) identifying a group of pixels that correspond to said face within a digitally-detected main image based on the tracking of said face within said collection of low resolution images;

- (d) determining initial values of one or more parameters of at least some of the pixels; and

- (e) determining an initial parameter of the digitally-detected image based on the initial values; and

- (f) automatically adjusting values of the one or more parameters of pixels within the digitally-detected image based upon comparison of the initial parameter with the desired parameter,

- (g) wherein the identifying of face pixels is automatically performed by an image processing apparatus, the method further comprising adding an indication of another face within the image, and

- (h) wherein multiple groups of pixels corresponding to multiple images of faces within the digital-captured image are identified after the adding, and the method further comprises performing automated processing of the multiple groups of pixels corresponding to the multiple images of faces including adjusting in a post-image capture process one or more values of one or more parameters of the multiple faces.

44. (previously presented) The one or more storage devices of claim 43, the identifying of face pixels being automatically performed by an image processing apparatus, the method further comprising manually adding an indication of another face within the image.